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☐ Internal initiation of translation directed by the 5'-untranslated region of the tobamovirus subgenomic RNA I(2).
Virology. 1999 Oct 10;263(1):139-54.
PMID: 10544089 [PubMed - indexed for MEDLINE]

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☐ Heterologous sequences greatly affect foreign gene expression in tobacco mosaic virus-based vectors.
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☐ The role of the 3'-untranslated region of non-polyadenylated plant viral mRNAs in regulating translational efficiency.
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Mol Cell Biol. 1993 Sep;13(9):5331-47.
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- ☐ 6: [Nicolaisen M, Johansen E, Poulsen GB, Borkhardt B.](#) [Related Articles](#), [Links](#)

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FEBS Lett. 1992 Jun 1;303(2-3):169-72.
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- ☐ 7: [Gallie DR, Feder JN, Schimke RT, Walbot V.](#) [Related Articles](#), [Links](#)



Functional analysis of the tobacco mosaic virus tRNA-like structure in cytoplasmic gene regulation.

Nucleic Acids Res. 1991 Sep 25;19(18):5031-6.

PMID: 1923770 [PubMed - indexed for MEDLINE]



8: Isomura Y, Matumoto Y, Murayama A, Chatani M, Inouye N, Ikegami M.

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Molecular cloning, sequencing and expression in Escherichia coli of the odontoglossum ringspot virus coat protein gene.

J Gen Virol. 1991 Sep;72 (Pt 9):2247-9.

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9: Gallie DR, Feder JN, Schimke RT, Walbot V.

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Post-transcriptional regulation in higher eukaryotes: the role of the reporter gene in controlling expression.

Mol Gen Genet. 1991 Aug;228(1-2):258-64.

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RNA pseudoknot domain of tobacco mosaic virus can functionally substitute for a poly(A) tail in plant and animal cells.

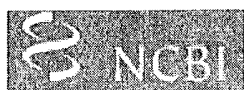
Genes Dev. 1990 Jul;4(7):1149-57.

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Recombinant proteins from transgenic plants.

Franken E, Teuschel U, Hain R.

Bayer AG Agrochemicals Division, Research/Biotechnology
Landwirtschaftszentrum Monheim, 51368, Leverkusen, Germany

Transgenic plants can express a wide variety of foreign genes and offer the opportunity of large-scale protein production in agricultural systems. The recombinant protein can serve both ex situ and in situ purposes. Due to significant progress in plant molecular biology, many different plant species can now be transformed and are even capable of producing very complex proteins such as antibodies or vaccines. Furthermore, recombinant proteins can mediate resistance against microbial pathogens, such as fungi or viruses, or protect transgenic plants from insect pests.

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1: Mol Biotechnol. 1995 Jun;3(3):225-36.

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The potential exploitation of plant viral translational enhancers in biotechnology for increased gene expression.

Turner R, Foster GD.

Botany Department, University of Leicester, UK.

The regulation of gene expression is extremely important for all organisms, not least for viruses that require a maximum rate of production of viral proteins to allow rapid multiplication and spread. Single-stranded positive-sense RNA viruses contain specific nucleotide sequences that can be used to elevate the expression of vital gene products to required high levels. Among plant viruses, translational enhancement has been documented widely, especially over the past few years. Reported candidates include one of the best known and most intensely researched virus, tobacco mosaic virus, members of the potyvirus group, and even a small satellite RNA of tobacco necrosis virus. Enhancement values range from 2-100-fold with different viruses, different reporter genes, and in different systems. Research indicates that an absence of secondary structure alone does not explain translational enhancement and despite attempts to determine the mechanism by which this enhancement occurs very little conclusions can be made as yet. Whatever the mechanism, the presence of these sequences upstream from an open reading frame results in an elevated level of protein production and may feature as important tools for biotechnology in the future.

Publication Types:

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